## REMARKS

Claims 1, 2, 5-18, 28, 29, 32-45 and 48-56 are currently active.

The claims have been amended. Antecedent support for the amendments is found on page 50, line 26, and above 100 pounds per hour on page 51, lines 1-8.

The Examiner has rejected the claims as being anticipated by Coal Cleaning. Applicants respectfully traverse this rejection.

Referring to Coal Cleaning, there is disclosed coal cleaning at pulverized-coal fired power plants. Coal Cleaning teaches that two different companies EXPORTech Company (who is the assignee of the above-identified patent application- and two of the co-authors of Coal Cleaning are co-inventors of the above-identified patent application), located in New Kensington, Pa., and the Bradley Pulverizer Company, located in Allentown, Pa., about 250 miles apart from EXPORTech, together were involved in coal desulfurization employing dry magnetic separation. See page 1, paragraph 5.

Coal Cleaning teaches that pilot level grinding was carried out at Bradley's facilities in Allentown, Pa., and laboratory scaled magnetic separation was carried out at

EXPORTech in New Kensington, Pa. See the section titled experimental procedure on page 3 of Coal Cleaning, first paragraph.

Coal Cleaning teaches that the Bradley pilot mill was operated until steady state was reached. Coal was then fed continuously for additional 10-20 minutes while samples were collected. The rate at which coal could be sampled via the circulation and base ports was limited to less than 20 percent of the feed rate in this preliminary work. Splits taken from the product and circulation samples were shipped to EXPORTech. The circulation samples were combined and screened at EXPORTech. See the section titled experimental procedure on page 3 of Coal Cleaning, second paragraph.

As is clear from the teachings of Coal Cleaning, the grinding process and the separation process occurred at distinct locations about 250 miles apart. Samples from the grinding process were shipped from the grinding facility to the separation facility. There was no "connection" of any type between these two facilities.

In regard to claim 1 of applicants, there is no teaching or suggestion of the limitation of "the separation mechanism connected to the pulverizer for separating the undesired material from coal". As explained above, the separation mechanism and the pulverizer are not connected at all, but are about 250 miles apart.

There is no teaching or suggestion of "a mechanism for returning coal from which a portion of the undesired material has been removed by the separation mechanism back to the pulverizer for additional grinding". As explained above, not only are the separation mechanism and the pulverizer not connected, but there is no teaching or suggestion of any type of mechanism for returning coal from the separation mechanism back to the pulverizer. In fact, no material was returned to Bradley. The results of magnetic separation were mathematically combined with the clean coal product from the pulverizer to infer the effects of the combined operation.

Applicants point out that in figure 1 of Coal Cleaning, there is a process diagram that discloses the overall steps performed by the operation taught in Coal Cleaning. On page 1, Coal Cleaning teaches this new method is illustrated in the block diagram of figure 1. In other words, this block diagram specifically teaches the overall steps that are carried out in the process, but does not teach or suggest any type of mechanism or system or apparatus where the pulverizer and the separation mechanism are physically connected so the material from the pulverizer passes through a connection to the separation mechanism; and a separate mechanism for returning material from the separation mechanism to the pulverizer. Figure 1 of Coal Cleaning simply shows the overall steps, some of which were carried out at facilities 250 miles apart. In fact, Coal Cleaning teaches away from applicants' claimed invention,

because Coal Cleaning teaches to perform the different aspects of the claimed invention at remote locations which are not connected.

There is no teaching of separating material at a feed rate of at least 100 pounds per hour. Coal Cleaning, on page 3, first paragraph, teaches to separate material at a feed rate of only 20 pounds per hour. In fact, Coal Cleaning teaches a ParaTrap separator which clogs so it could be connected with the pulverizer because the material would spill out of the separator when it clogged. In fact, the ParaTrap of Coal Cleaning had to be hand fed because of the clogging. See the enclosed Declaration by the co-inventor of the above-identified patent application and co-author of Coal Cleaning. As per the Declaration, it took several years to figure out how to connect the pulverizer and the separation mechanism to be able to separate at least 100 pounds per hour of material safely.

The inventors worked for years to figure out how to connect the pulverizer and the separation mechanism of the above-identified patent application so they could operate together without clogging or breaking down. The Examiner's statement that it would be obvious to connect the pulverizer and the separation mechanism and achieve a throughput of at least 100 pounds per hour, as found in the claims as amended, is completely unrealistic. For example, the inventors had to figure out how to convey the material from the pulverizer to the separation mechanism while maintaining minimum length, avoiding dusting problems, and

providing for fire safety. There was too much dust in the initial designs to connect the pulverizer and the separation mechanism. Their initial designs of trying to build the separation mechanism as part of a pulverizer had to be abandoned because there was not enough thickness of iron in the walls of the pulverizer to carry the magnetic flux. The inventors had to learn how to withdraw enough sample from the inside of the pulverizer to have a major effect on the pulverizer product without adversely affecting the internal flow of particles of air inside the pulverizer. At the same time, the inventors had to learn how to get the material through the wall of the pulverizer safely. Explosions and fire are major problems.

Accordingly, the ParaTrap of Coal Cleaning could not simply be connected to the grinder taught by Coal Cleaning because the ParaTrap constantly clogged, and if the material was not fed into the separator by hand, but instead with some type of automatic device, like that found in the above-identified patent application, the material would pour out over the sides and all over the floor when the ParaTrap became clogged. It should be noted that both the claimed invention and the ParaTrap separator operated with respect to minus 8 mesh coal. Accordingly, Claim 1 of applicants, is not anticipated nor made obvious by Coal Cleaning.

Independent Claim 28 has the limitation of "a separation mechanism connected to the comminutor for separating the undesired material from desired material at a feed rate of

at least 100 pounds per hour, the separation mechanism includes a conveyor which carries undesired material from the removal mechanism" of the comminutor. For the reason explained above, Claim 28 is not anticipated by or obvious from Coal Cleaning.

Independent Claim 48 also has the limitation of "a removal mechanism through which undesired material from the pulverizer is brought to the separation mechanism, and connecting the pulverizer with the separation mechanism remote from the pulverizer". For the reasons explained above, Claim 48 is not anticipated by or obvious from Coal Cleaning.

Independent Claim 50 is patentable essentially for the reasons Claim 48 is patentable over Coal Cleaning.

Independent Claim 53 has the limitation of "a removal mechanism connecting the pulverizer through the entry ports into a separation mechanism located outside of the pulverizer, and through which material from the pulverizer is brought to the separation mechanism at a feed rate of at least 100 pounds per hour".

The dependent claims only further enhance the distinctions of the teachings of Coal Cleaning, and the connectivity between the grinding and the separation functions found in applicants' claims. The dependent claims are patentable for these additional reasons.

In view of the foregoing amendments and remarks, it is respectfully requested that the outstanding rejections and objections to this application be reconsidered and withdrawn, and Claims 1, 2, 5-18, 28, 29, 32-45 and 48-56, now in this application be allowed.

Respectfully submitted,

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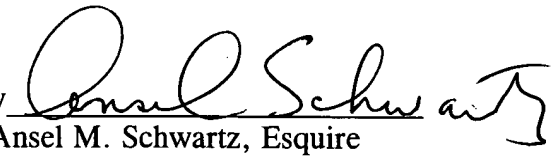
By 

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